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ABSTRACT

This study evaluated the effect of a Head Start program on children's intelligence and reading achievement test scores over a three year period. Each of 25 Head Start children was paired with a non-Head Start child of the same reace, sex, age, socioeconomic status, date of school entrance, kindergarten experience, promotion record, and type of school. The second part of the study involved a three year followup assessment of intelligence test scores of children who had attended Head Start before entry into school. The conclusions was reached that Project Head Start had been effective in preparing children for later reading achievement, as determined by the word meaning subtest of the Stanford Achievement Test. The durability of this effect was demonstrated over a three year span. Intelligence, as measured by the Stanford-Binet Intelligence Test, improved during the longitudinal study, but the preschool program could not be given credit for the positive change. The author recommends continued longitudinal research in preschool compensatory education. (Author/WR)

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YES, HEAD START IMPROVES READING!

A LONGITUDINAL STUDY

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The purpose of this study was to evaluate the effectiveness of a Head Start program on the intelligence and reading achievement of children over a three-year span of time. The long term affect of the experience was assessed through special testing of public school children who had participated in a Head Start program and disadvantaged children who had not attended. In order to have a more sensitive measurement, children were carefully matched on eight school and cultural variables before intelligence and reading scores were analyzed.

The importance of environmental factors on the growth and development of young children has been recognized. Experiences during the early years of a child seem to be significant in providing conceptual skills needed for later learning. If the environment has been inadequate, perceptual-motor skills and cognitive functioning may be curtailed and later school success may be prevented. Poverty often deprives children of rich and meaningful experiences during the critical early years.

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In recognizing the problem of cultural deprivation, considerable emphasis has been placed on the education of children before they enter public school.

Project Head Start, a federally sponsored program, was initiated to compensate for the effects of poverty. It was designed to provide a wide variety of experiences for children from disadvantaged backgrounds during the summer before they enter school. Two of its major objectives were to stimulate children's cognitive and intellectual functions and develop skills of communication in preparation for later reading.

Early reports of Project Head Start indicated that positive changes were taking place in the children and measures of intelligence and reading readiness were significantly higher at the end of a summer program. Representative studies showing positive change after two months were reported by Horowitz and Rosenfeld (1966), Cowling (1967), Wolff and Stein (1967), and IaColucci (1968). However, over a longer period of time, a leveling off of test scores was observed. Studies of longer duration in which no significant difference was found in intelligence and achievement were reported by Diehl (1967), Himley (1967), Hyman and Kliman (1967), Beard (1968), and Carpenter (1969). The long term affect of the preschool compensatory program on the intelligence and reading achievement of children continues to be challenged.

This longitudinal study was designed to test the durability of preschool compensatory education. School and cultural variables that might influence the results in a comparative study were eliminated as much as possible. Several questions were investigated. Of particular interest were:

1. Is the reading achievement of Head Start children different from the matched non-Head Start children?
2. Is the present intelligence of Head Start children different from the intelligence of matched non-Head Start disadvantaged children?
3. Has the intelligence of children who attended Head Start changed during the three years since that experience?

Procedure

The study was designed in two parts, both contributing to an evaluation of the long term effectiveness of Project Head Start. The first method compared Head Start and carefully matched non-Head Start children on their present intelligence and reading achievement. Scores were analyzed statistically. The second part of the study involved a three-year follow-up assessment of the children who had attended Head Start before

entry into school. The intelligence of each child was measured during Head Start in 1966 and again in 1969 within the school situation. Analysis was made on pre- and posttest scores to determine the significance of the difference.

During a summer Head Start program in 1966, 10% of the 500 children enrolled in Alachua County, Florida, were randomly selected and administered the Stanford-Binet Intelligence Scales. School records were searched three years later in an effort to locate the special group of 50 children. Although many had moved from the county, 25 were found to be enrolled and attending one of the county schools. These children were the experimental subjects in the present study.

Cultural variables were controlled when selecting the non-Head Start children. Each Head Start child was paired with a non-Head Start child having the same race, sex, age, and socioeconomic status. Both black and white races were included, although blacks predominated. There was a fairly even distribution of sexes. Children had started the program three years previously with an age variability of almost two years. Only children from families who were disadvantaged were considered in the matching process.

School related variables identified within the experimental group were also matched. Paired non-Head Start children had the same date of school entrance, kindergarten experience,

promotion record, and type of school. The date of school entrance varied widely as children could have entered first grade immediately after Head Start, could have attended kindergarten first, or remained at home a year before enrolling in school. As kindergarten was not required, many children entered school without this experience. All of the children had not been promoted each year and grade placement varied from that expected by date of school entrance. Head Start children had also attended rural, urban, integrated, and non-integrated school. By selecting children not having attended Head Start but having the same kinds of school experiences as reflected in these factors, it was possible to obtain a more valid interpretation of the value of Project Head Start.

Intelligence was measured by the Stanford-Binet Intelligence Test, Form LM (Terman and Merrill, 1966). The Word Meaning subtest of the Stanford Achievement Test, Revised Edition (Kelley et al, 1964) was used to measure reading achievement. Although all children were given Primary II Battery, scores were based on norms within their present grade placement. To overcome this difference, all scores were converted to percentile ranks and the percentile ranks were finally converted into t scores (Cronbach, 1960). All statistical computations were based on t scores.

Results and Discussion

The mean difference between reading achievement scores of the two groups was significant at the .05 level in favor of the Head Start children. Test results were noteworthy in terms of the goals that had been set for Project Head Start. Emphasis had been placed on early reading readiness in planning the curriculum for the summer preschool experience. The positive affects of the program as reflected in later reading scores gave evidence that the program had been successful. Children who attended Head Start had been stimulated to develop better skills of communication as a preparation for later reading. Because of the experience, they were able to maintain an advantage in reading over non-Head Start children during a three-year span of time.

Insert Table 1 about here

The mean difference between pre- and post-I.Q. scores on Head Start children was significant beyond the .01 alpha level in favor of post-I.Q. scores. After a Head Start experience and several years in a public school, the mean I.Q. of the Head Start children was significantly higher. This seemed to indicate that the preschool program had increased intelligence. However, conflicting evidence was found when their

present I.Q. scores were compared with the scores of a carefully matched group of disadvantaged children who had not attended Head Start previously. The mean difference between I.Q. scores of Head Start and non-Head Start children was not significant at the .05 alpha level. Therefore, Head Start could not be credited with increasing intelligence.

Insert Tables 2, 3, & 4 about here

The results of the two methods of evaluating the effectiveness of Project Head Start on intelligence suggested the possibility that the school environment during the three-year period had improved the intelligence of Head Start children. Non-Head Start children might have improved intellectually also. Both groups had experienced similar intellectual stimulation during that time as they had been matched on important school-related variables. The Alachua County school system had been the recipient of Federal grants under the Elementary and Secondary Act, Title I, in 1967, 1968, and 1969. Special personnel and materials had been placed in all of the schools attended by both groups of children during the three-year period. The additional educational opportunities could have stimulated intellectual growth.

Conclusion

This study gave evidence that Project Head Start had been effective in preparing children for later reading achievement. Its durability was demonstrated over a three-year span of time. Intelligence of children had improved during the longitudinal study, but the preschool program could not be given credit for the positive change.

Continued longitudinal research in the field of preschool compensatory education is recommended. The full benefits of the experience might develop slowly and be difficult to measure. Many of the past studies of Project Head Start have been based on test scores within a specified grade. One of the significant aspects of the present study was a verification of wide educational differences that accrue over time. The design of the investigation should add importance to the results.

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TABLE 1

Stanford Achievement Test - Word Meaning

Group (N=24)	Variance	Mean	S.D.	t value	t stat. df 23
Head Start	72.9	43.2	8.5		
Non-Head Start	110.3	38.4	10.5		
Difference	129.2	4.8		2.07	2.06*

Note.--*p<.05

TABLE 2

Mean and Standard Deviation of the
Pre- and Post-I.Q. Scores

Group (N=25)	Range	Variance	Mean	S.D.
Head Start 1966	66-105	119.8	85.0	11.0
Head Start 1969	63-117	147.2	90.1	12.1

TABLE 3

Mean Difference of Pre- and Post-I.Q. Scores

Diff. in Mean I.Q.	Correlation Coefficient	*t* value	*t* statistic df 24
5.1	.77	3.2	2.06*

Note.--*$p < .05$

TABLE 4

Mean and Standard Deviation of Head Start and Non-Head Start I.Q. Scores - 1969

Group (N=25)	Variance	Mean	S.D.	*t* value	*t* stat. df 24
Head Start	147.2	90.1	12.1		
Non-Head Start	136.0	91.7	11.7		
Difference	241.0	1.6		.50	2.06*

Note.--*$p < .05$

Yes, Head Start Improves Reading!

Janet J. Larsen
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This study evaluated the effectiveness of a Head Start program on children's intelligence and reading achievement test scores over a three year span. In comparing intelligence and reading achievement, each of twenty-five Head Start children was paired with a non-Head Start child of the same race, sex, age, socioeconomic status, date of school entrance, kindergarten experience, promotion record, and type of school. The second part of the study involved a three year followup assessment of intelligence test scores of children who had attended Head Start before entry into school. The researcher concludes that Project Head Start had been effective in preparing children for later reading achievement, as determined by the word meaning subtest of the Stanford Achievement Test. The durability of this effect was demonstrated over a three year span. Intelligence (as measured by the Stanford-Binet Intelligence Test) improved during the longitudinal study, but the preschool program could not be given credit for the positive change. The author recommends continued longitudinal research in preschool compensatory education.